network, minimum and maximum flow rates through particular elements of the network, minimum tank levels and minimum and maximum permissible pipe sizes.

Please cancel Claim 10.

11. (Amended) A method according to claim 1, wherein the starting proposal is selected as the proposal offering the greatest optimisation of said predetermined criteria from a database of possible proposals available for consideration.

12. (Amended) A method according to claim 11, wherein said starting proposal is taken as an initial starting proposal and further comprising the operations of:

a) performing a first revision of the initial starting proposal to revise the proposal for at least some of the pipes in the pipe list to a proposal less likely to result in a violation of said predefined operating limit;

b) performing a network analysis of said at least one predetermined operating parameter of the network to predict whether the predefined operating limit will be violated on the basis of said first revision;

c) if said network analysis predicts a violation of said predefined operating limit, then performing a second revision of the starting proposal for each pipe in the list, said second revision comprising adopting a proposal for each pipe which is least likely to produce a violation in said predefined operating limit from the possible proposals available for consideration.

14. (Amended) A method according to claim 12, wherein in performing said first revision the proposal for each of the pipes in the pipe list is revised by proposing an increased size for each pipe compared to the size proposed for the initial starting proposal.

16. (Amended) A method according to claim 1, wherein the list of pipes comprises every pipe in the network model.

17. (Amended) A method according to claim 1, wherein the list of pipes comprises a selection of pipes from the network model.

19. (Amended) A method according to claim 17, wherein the pipe list is compiled by performing a filter operation on the full pipe list to select pipes satisfying specified filter conditions.

20. (Amended) A method according to claim 1, wherein said network model is a part of a larger network or network model.

21. (Amended) A method according to claim 1, wherein the network modelled is a water supply and/or distribution network.

23. (Amended) A method according to claim 1, wherein said predetermined criteria is the cost of installing or rehabilitating pipes within the network, or of operating the network.

27. (Amended) A method according to claim 24, wherein the instance count is made by considering each node defined by the network model in turn and the pipe or pipes which converge or terminate at each node, and increasing the instance count for each pipe occurring at least once in a flow path to that node through the or each pipe terminating or converging at that node.

Correctly stated in Rewritten Claims attached

28. (Amended) A method according to ~~any one of~~ claim~~s~~ 24 ~~to 26~~, wherein the instance count is made by considering each pipe in turn and implementing the instance count for each pipe occurring at least once in a flow path through the selected pipe.

33. (Amended) A method according to claims 30, wherein the network peak flow demand is determined by estimating the through flow through each pipe tree branch required to meet network demand downstream of the branch, giving a branch through flow demand, and for each pipe summing the branch through flow demand for each branch of which that pipe is a part to arrive at the network peak demand for that pipe.

36. (Amended) A computer program comprising computer readable program code for executing a method according claim 1.

37. (Amended) A program storage device readable by a machine and encoding a program of instructions for executing the method according to claim 1.

38. (Amended) A computer system comprising means for operating a method according to claim 1.

Cancel claims 39-42.

Please add the following claims:

43. A method of according to claim 2, wherein the hydraulic significance of each pipe of the pipe list is determined by:

i) performing a network analysis on the network model to determine the flow patterns through the network at a given time;

ii) counting the number of instances of each pipe occurring in a flow path between a source node defined by the network model and the boundary of the network model, and using the instance count for each pipe as the indication of the hydraulic significance of that pipe within the network, such that pipes with a higher instance count are considered to more hydraulically significant than pipes with a lower instance count.

44. A method according to claim 43, wherein operations (i) and (ii) are performed for a number of different times over a predetermined time period and the instance count of each pipe determined at each time is summed to give a total instance count for each pipe which is used as an indication of a hydraulic significance of that pipe within the network.

45. A method according to claim 44, wherein the times are 30 minute intervals over a 24 hour period modelled by the network.

46. A method according to claim 43, wherein the instance count is made by considering each node defined by the network model in turn and the pipe or pipes which converge or terminate at each node, and increasing the instance count for each pipe occurring at least once in a flow path to that node through the or each pipe terminating or converging at that node.

47. A method according to claim 43, wherein the instance count is made by considering each pipe in turn and implementing the instance count for each pipe occurring at least once in a flow path through the selected pipe.

48. A method according to claim 1, wherein said at least one predetermined operating parameter is the peak flow rate any particular pipe must be able to provide, said peak flow rate for each pipe being determined by:

a) totalling the peak flow for the whole network and distributing this across the network to give a network peak flow demand on each pipe;

b) deriving a local peak flow demand representative of the localised demand on each pipe of the network; and

c) combining the network peak flow demand with the local peak flow demand to arrive at a peak flow rate demand for each pipe in the network.

49. A method according to claim 48, wherein the determination of the local peak demand flow comprises:

a) performing a network analysis on the network model at the peak flow time to determine the network peak flow pattern;

b) identifying each source or pseudo-source within the network model.

c) identifying each node which receives convergent in flows from two or more pipes within the network model;

d) treating each source and/or node identified above as the origin of a pipe tree having one or more branches each comprising one or more pipes, each branch terminating at a downstream convergent node or terminal node;

e) estimating the local demand on each pipe tree branch and assuming this estimate to be the local peak flow demand for each pipe in the respective branch.

50. A method according to claim 49, wherein the local peak demand for each pipe is estimated by determining the relative demand of the users supplied by each pipe in a pipe tree branch, and estimating the required flow through each pipe in the pipe tree branch required to meet the local demand on the pipe tree branch.

51. A method according to claim 50, wherein said estimating comprises combining the direct local peak demand on each pipe in a pipe tree branch with an indirect local demand on each pipe which is the contribution made by flow through the respective pipe to the direct local demand on each downstream pipe in the same pipe tree branch.

52. A method according to claims 49, wherein the network peak flow demand is determined by estimating the through flow through each pipe tree branch required to meet network demand downstream of the branch, giving a branch through flow demand, and for each pipe summing the branch through flow demand for each branch of which that pipe is a part to arrive at the network peak demand for that pipe.

53. A method according to claim 53, wherein the branch through flow is taken to be the contribution made by the flow through that branch to the network flow immediately downstream of the node at which the branch terminates.

54. A method according to claim 53, wherein said contribution is obtained as the ratio of the flow through the downstream pipe of the branch to the total network flow converging at the node at which the downstream pipe of the branch terminates, multiplied by the total network flow immediately downstream of the node.

55. A computer program comprising computer readable program code for executing a method according claim 24.

56. A program storage device readable by a machine and encoding a program of instructions for executing the method according to claim 24.